Screwworm Flies - S.W.

MAY 28 1956

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
ENTOMOLOGY RESEARCH BRANCH

P. O. Box 3391
Orlando, Florida
May 25, 1956

AIRMAIL

To: R. C. Bushland, Box 232, Kerrville, Texas

From: A. H. Baumhover

Subject: Attractant and Larval Media Tests
(Brandstein, Baumhover)

Following is a tabulation of trapping results from the attractant test conducted at Captiva, Florida May 12 through 18, 1956:

Date of catch, quantity in cc's, and number of screw-worms caught in rectangular fly traps baited with indicated material:

Bait	5/12 SW's M	5/12 SW's F	5/12 Quantity of catch in cc's.	5/13 SW's M	5/13 SW's F	5/13 Quantity of catch in cc's.	5/14-18 SW's M	5/14-18 SW's F	5/14-18 Quantity of catch in cc's.
10 gms. dried egg yolk in 200 cc. H_2O, incubated 3 days at 37° C. 200 gms. ground horse meat 100 cc. citrated beef blood	1	14	1,850	3	7	2,500	4	81	6,500
10 gms. tryptone in 200 cc. H_2O incubated 2 days with Proteus at 37° C. 200 gms. ground horse meat 100 cc. citrated beef blood	0	2	230	0	0	120	1	18	2,450
10 gms. Myostate in 200 cc. H_2O incubated 2 days with Proteus at 37° C. 200 gms. ground horse meat 100 cc. citrated beef blood	0	2	150	0	0	170	1	4	650
1 pound fresh liver partially submerged in tap H_2O	0	8	290	0	2	90	0	0	25

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Following is a tabulation of trapping results from the attractant test conducted at Captiva, Florida May 12 through 16, 1956:

Bait	Date of catch, quantity in cc's, and number of screw-worms caught in rectangular fly traps baited with indicated material:											
	5/12			5/13			5/14-16					
	SW's	Quantity:		SW's	Quantity:		SW's	Quantity				
	M	F	of catch:	M	F	of catch:	M	F	of catch:			
			in cc's.:			in cc's.:			in cc's.			
10 gms. dried egg yolk in 200 cc. H_2O, incubated 3 days at 37° C. 200 gms. ground horse meat 100 cc. citrated beef blood	1	14	1,850	3	7	2,500	4	81	6,500			
10 gms. trypsone in 200 cc. H_2O incubated 2 days with Proteus at 37° C. 200 gms. ground horse meat 100 cc. citrated beef blood	0	2	230	0	0	120	1	18	2,150			
10 gms. Myostate in 200 cc. H_2O incubated 2 days with Proteus at 37° C. 200 gms. ground horse meat 100 cc. citrated beef blood	0	2	150	0	0	170	1	4	650			
1 pound fresh liver partially submerged in tap H_2O	0	8	290	0	2	90	0	0	25			

The four traps were placed approximately 10 feet apart in a stright line and rotated twice daily during the two 24-hour catches with each bait. All baits were replaced with fresh material at the beginning of each trapping period except for the liver.

In view of the encouraging results with the egg-yolk bait we would like your reaction to further field testing of this material by Mr. Skipper, possibly testing it both in competition with several of the status traps and in isolated areas without competition between the two baits. Although the egg-yolk bait was far superior to the liver bait when placed side by side, the Captiva test does not indicate that the liver would not have been as successful without competition from a superior bait.

During the first two days of the test the three baits were applied to guinea pigs, with negative results. Although several screw-worms were observed feeding on the material as it was applied, no egg masses were observed. Surprisingly only 1 egg mass was oviposited on one of the two infested guinea pigs.

Your suggestion for excluding flies from the bait by means of screen is being incorporated in a trapping test now being conducted at Bithlo.

Larval Rearing Tests
(Graham, Dudley)

The following larval-rearing tests are in compliance with recent instructions:

Test No. 1 - The effect of incorporating screw-worm flies and pupae in the larval-rearing medium.

Screw-worms were reared through on a medium containing a small percentage of ground flies, on a medium containing a small percentage of ground pupae, and on standard medium. Newly emerged flies and six-day-old pupae were substituted for 5 percent of the meat in the rearing medium. Approximately 300 larvae completed their growth on equal quantities of each medium.

Early stages of larval growth were similarly retarded in the media containing flies and pupae. At three days of age these larvae were about half as large as those in the standard medium.

Full grown larvae reared on the standard medium were considerably larger as shown in the following tabulation:

Material combination and percent of each	Average weight in mg. of 100 full grown larvae
Horse meat 95 - ground flies 5	70
Horse meat 95 - ground pupae 5	78
Horse meat 100	87

Test No. 2 - The evaluation of various concentrations of dried and whole blood, lean beef, and beef hearts as a finishing medium for screw-worms.

Larvae were reared to three days old on standard medium then approximately 500 larvae were transferred to each pie plate containing 1,000 gms. of the various media.

All combinations other than the standard were considered unsatisfactory.

The media composition and consistency are as follows:

Material combination and percent of each	Average weight in mg. of 100 full grown larvae
Horse meat 95 - ground flies 5	70
Horse meat 95 - ground pupae 5	75
Horse meat 100	67

Test No. 2 - The substitution of various concentrations of dried and whole blood, lean beef, and beef hearts as a finishing medium for screw-worms.

Larvae were reared to three days old on standard medium then approximately 500 larvae were transferred to each pie plate containing 1,000 gms. of the various media.

All combinations other than the standard were considered unsatisfactory.

The media composition and consistency are as follows:

Percent meat	Percent heart	Percent water	Percent whole blood	Percent dried blood	Consistency rating	Avg. wt. in mg. of 100 full grown larvae
40	--	40	20	--	good	77
--	40	40	20	--	do.	74
30	--	40	20	10	gummy	discarded
--	30	40	20	10	do.	do.
20	--	40	20	20	do.	do.
--	20	40	20	20	do	do.
10	--	40	20	30	very gummy	do.
--	10	40	20	30	do.	do.
--	--	40	20	40	do.	do.
30	--	40	30	--	soupy	69
--	30	40	30	--	do.	64
20	--	40	40	--	soupy & sticky	discarded
--	20	40	40	--	do.	do.
10	--	40	30	--	soupy	do.
--	10	40	30	--	do.	do.
30	--	30	40	--	thin	do.
--	30	30	40	--	do.	do.
30	--	20	50	--	do.	58
--	30	20	50	--	do.	60
30	--	10	60	--	soupy	discarded
--	30	10	60	--	do.	do.
30	--	--	70	--	do.	do.
--	30	--	70	--	do.	do.
20	--	30	50	--	do.	do.
--	20	30	50	--	do.	do.
20	--	20	60	--	do.	do.
--	20	20	60	--	do.	do.
20	--	10	70	--	thin	do.
--	20	10	70	--	do.	do.
20	--	--	80	--	soupy	do.
--	20	--	80	--	do.	do.
10	--	30	60	--	thin	do.
--	10	30	60	--	do.	do.
10	--	20	70	--	do.	do.
--	10	20	70	--	do.	do.
10	--	10	80	--	do.	do.
--	10	10	80	--	do.	do.
10	--	--	90	--	do.	do.
--	10	--	90	--	do.	do.
(10% vermiculite)		--	90	--	soupy below surface	do.
50	--	--	50	--	sticky	64
--	50	--	50	--	do.	68
40	--	--	60	--	gummy	56
--	40	--	60	--	do.	52

1/ Standard formulation containing lean beef
2/ Standard formulation containing beef heart

L-R. U. Baghland-5-25-55

Percent meal	Percent beans	Percent water	Percent whole dried blood	Percent dried blood	Chemical rating	Avg. wt. in mg. of 100 full grown larvae
40	--	40	20	--	good	77
--	40	40	20	--	do.	78
30	--	40	20	10	sunny	discarded
--	30	40	20	10	do.	do.
20	--	40	20	20	do.	do.
--	20	40	20	20	do	do.
10	--	40	20	30	very sunny	do.
--	10	40	20	30	do.	do.
--	--	40	20	40	do.	do.
30	--	40	30	--	sunny	69
--	30	40	30	--	do.	64
20	--	40	40	--	sunny & sticky	discarded
--	20	40	40	--	do.	do.
10	--	40	30	--	sunny	do.
--	20	40	30	--	do.	do.
30	--	30	40	--	thin	do.
--	30	30	40	--	do.	do.
30	--	20	50	--	do.	59
--	30	20	50	--	do.	60
30	--	10	60	--	sunny	discarded
--	30	10	60	--	do.	do.
30	--	--	70	--	do.	do.
--	30	--	70	--	do.	do.
20	--	30	50	--	do.	do.
--	20	30	50	--	do.	do.
20	--	20	60	--	do.	do.
--	20	20	60	--	do.	do.
20	--	10	70	--	thin	do.
--	20	10	70	--	do.	do.
20	--	--	80	--	sunny	do.
--	20	--	80	--	do.	do.
10	--	30	60	--	thin	do.
--	10	30	60	--	do.	do.
10	--	20	70	--	do.	do.
--	10	20	70	--	do.	do.
10	--	10	80	--	do.	do.
--	10	10	80	--	do.	do.
10	--	--	90	--	do.	do.
--	10	--	90	--	do.	do.
(10% vermiculite)		--	90	--	sunny below surface	do.
50	--	--	50	--	sticky	64
--	50	--	50	--	do.	59
40	--	--	60	--	gummy	56
--	40	--	60	--	do.	52

1/ Standard formulation containing lean beef
2/ Standard formulation containing beef heart

5-R. C. Bushland-5-25-56

Beef heart compared satisfactorily to lean beef in the standard formulation. There was more liquid on the surface of the heart medium than on the lean beef medium.

The formulations containing dried blood were too gummy for free movement of the larvae. The larvae grew little if any and mortality was high after 24 hours.

Those formulations containing a higher content of whole blood in relation to the standard amount of meat and water were too soupy, thin or sticky.

cc: A. W. Lindquist

A. J. Baumhover

5-4. O. Burkland-5-25-56

Beef heart compared satisfactorily to lean beef in the standard formulation. There was more liquid on the surface of the beef medium than on the lean beef medium.

The formulations containing dried blood were too gummy for free movement of the larvae. The larvae grew little if any and mortality was high after 24 hours.

Those formulations containing a higher content of whole blood in relation to the standard amount of meal and water were too soupy, thin or sticky.

cor A. W. Lindquist